

Amendments to the Claims:

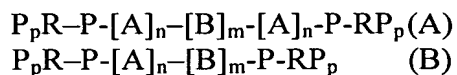
This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-14 (Canceled)

15. (New) A process for the removal of multivalent metal cations from an aqueous system, comprising treating an aqueous system with a high molecular weight non-ionic surfactant having anionic groups or salts thereof.

16. (New) The process of Claim 15, wherein said high molecular weight non-ionic surfactant having anionic groups or salts thereof is represented by formula A or formula B:



wherein:

P is a mono-valent oxygen containing anionic group or a salt thereof selected from the group consisting of oxides of carbon, sulphur and phosphorus;

p is in the range of 1 to 4;

R is a linear or branched, saturated or unsaturated C₂-C₁₂ alkylene group;

A is ethylene oxide;

B is propylene oxide;

n is in the range of 5 to 1000; and

m is in the range of 5 to 1000.

17. (New) The process of Claim 15, wherein the anionic groups are terminal anionic end groups.

18. (New) The process of Claim 16, wherein the oxides of carbon, sulphur and phosphorus are selected from the group consisting of:

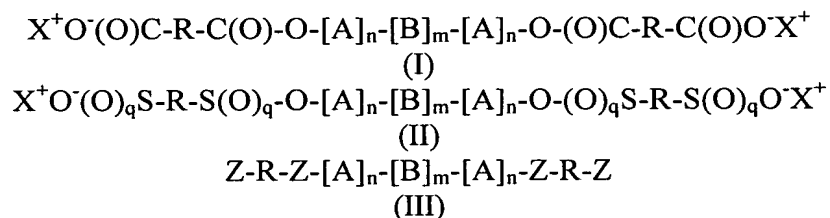
$\text{-C(O)O}^-\text{X}^+$;
 $\text{-S(O)}_q\text{-O}^-\text{X}^+$ wherein q is 1 or 2;
 $\text{-P(O)(O}^-\text{X}^+)_2$;
 $\text{-P(O)(H)-O}^-\text{X}^+$;
 $=\text{P(O)-O}^-\text{X}^+$; and
 $=\text{P-O}^-\text{X}^+$

wherein X is independently selected from hydrogen, an alkali metal, an ammonium group NR'_4^+ wherein R' is independently selected from hydrogen or linear or branched $\text{C}_1\text{-C}_4$ alkyl groups, or two X's are an alkaline earth metal.

19. (New) The process of Claim 15, wherein the groups P are terminal monovalent oxygen containing anionic end groups or salts thereof.

20. (New) The process of Claim 16, wherein the groups P are terminal monovalent oxygen containing anionic end groups or salts thereof.

21. (New) The process of Claim 15, said surfactant being represented by the following general formula (I) or (II) or (III):



wherein:

X is hydrogen, an alkali metal, or an ammonium group NR'_4 wherein R' is independently selected from hydrogen or linear or branched $\text{C}_1\text{-C}_4$ alkyl groups, or two X's are an alkaline earth metal;

R is a linear or branched, saturated or unsaturated C₂-C₁₂ alkylene group;

A is ethylene oxide;

B is propylene oxide;

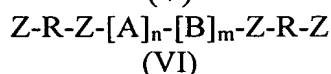
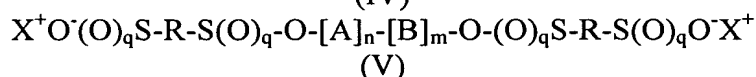
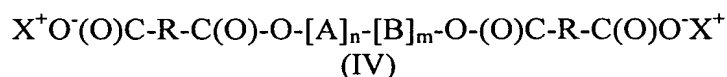
n is in the range of 5 to 1000;

m is in the range of 5 to 1000;

q is 1 or 2; and

wherein Z is independently selected from phosphonate or phosphinate.

22. (New) The process of Claim 15, said surfactant being represented by the following general formula (IV) or (V) or (VI):



wherein:

X is hydrogen, an alkali metal, or an ammonium group NR'_4^+ wherein R' is independently selected from hydrogen or linear or branched $\text{C}_1\text{-C}_4$ alkyl groups, or two X's are an alkaline earth metal, preferably magnesium or calcium;

R is a linear or branched, saturated or unsaturated $\text{C}_2\text{-C}_{12}$ alkylene group;

A is ethylene oxide;

B is propylene oxide;

n is in the range of 5 to 1000;

m is in the range of 5 to 1000;

q is 1 or 2; and

wherein Z is independently selected from phosphonate or phosphinate.

23. (New) The process of Claim 21, wherein X is hydrogen or an alkali metal.

24. (New) The process of Claim 22, wherein X is hydrogen or an alkali metal.

25. (New) The process of Claim 16, wherein R comprises a linear and saturated C₂-C₆ alkylene group.

26. (New) The process of Claim 21, wherein R comprises a linear and saturated C₂-C₆ alkylene group.

27. (New) The process of Claim 22, wherein R comprises a linear and saturated C₂-C₆ alkylene group.

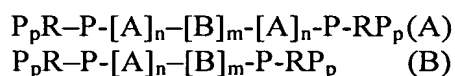
28. (New) The process of Claim 15, wherein said process decreases the hardness of said aqueous system.

29. (New) The process of Claim 15, wherein said process is applied to an industrial or a domestic wash process.

30. (New) The process of Claim 15, wherein the temperature of said aqueous system ranges from about 0 - 200°C.

31. (New) A process for the removal of multivalent metal cations from an aqueous system, comprising exposing at a first temperature multivalent metal cations present in an aqueous system to a high molecular weight non-ionic surfactant having anionic groups or salts thereof to form a cation-surfactant complex, and wherein said resulting cation-surfactant complex is further exposed to a second temperature, the second temperature being lower than the first temperature, to release said multivalent metal cations from said high molecular weight non-ionic surfactant having anionic groups or salts thereof.

32. (New) The process of Claim 31, wherein said high molecular weight non-ionic surfactant having anionic groups or salts thereof is represented by formula A or formula B:



wherein:

P is a mono-valent oxygen containing anionic group or a salt thereof selected from the group consisting of oxides of carbon, sulphur and phosphorus;

p is in the range of 1 to 4;

R is a linear or branched, saturated or unsaturated C₂-C₁₂ alkylene group;

A is ethylene oxide;

B is propylene oxide;

n is in the range of 5 to 1000; and

m is in the range of 5 to 1000.

33. (New) The process of Claim 31, wherein the anionic groups are terminal anionic end groups.

34. (New) The process of Claim 32, wherein the oxides of carbon, sulphur and phosphorus are selected from the group consisting of:

-C(O)O⁻X⁺;

-S(O)_q-O⁻X⁺ wherein q is 1 or 2;

-P(O)(O⁻X⁺)₂;

-P(O)(H)-O⁻X⁺;

=P(O)-O⁻X⁺; and

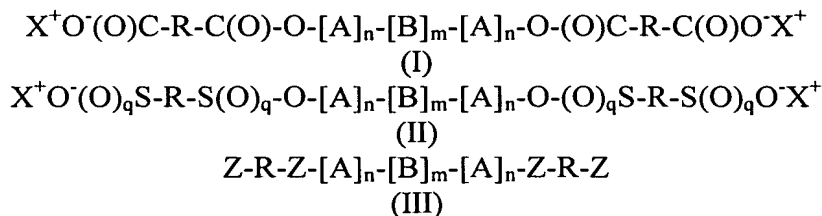
=P-O⁻X⁺

wherein X is independently selected from hydrogen, an alkali metal, an ammonium group NR'₄ wherein R' is independently selected from hydrogen or linear or branched C₁-C₄ alkyl groups, or two X's are an alkaline earth metal.

35. (New) The process of Claim 31, wherein the groups P are terminal mono-valent oxygen containing anionic end groups or salts thereof.

36. (New) The process of Claim 32, wherein the groups P are terminal mono-valent oxygen containing anionic end groups or salts thereof.

37. (New) The process of Claim 31, said surfactant being represented by the following general formula (I) or (II) or (III):



wherein:

X is hydrogen, an alkali metal, or an ammonium group NR'_4 wherein R' is independently selected from hydrogen or linear or branched C_1 - C_4 alkyl groups, or two X's are an alkaline earth metal;

R is a linear or branched, saturated or unsaturated C_2 - C_{12} alkylene group;

A is ethylene oxide;

B is propylene oxide;

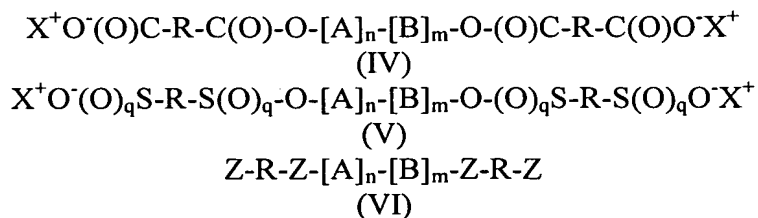
n is in the range of 5 to 1000;

m is in the range of 5 to 1000;

q is 1 or 2; and

wherein Z is independently selected from phosphonate or phosphinate.

38. (New) The process of claim 31, said surfactant being represented by the following general formula (IV) or (V) or (VI):



wherein:

X is hydrogen, an alkali metal, or an ammonium group NR'_4^+ wherein R' is independently selected from hydrogen or linear or branched $\text{C}_1\text{-C}_4$ alkyl groups, or two X's are an alkaline earth metal;

R is a linear or branched, saturated or unsaturated $\text{C}_2\text{-C}_{12}$ alkylene group;

A is ethylene oxide;

B is propylene oxide;

n is in the range of 5 to 1000;

m is in the range of 5 to 1000;

q is 1 or 2; and

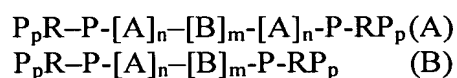
wherein Z is independently selected from phosphonate or phosphinate.

39. (New) The process of Claim 37, wherein X is hydrogen or an alkali metal.
40. (New) The process of Claim 38, wherein X is hydrogen or an alkali metal.
41. (New) The process of Claim 32, wherein R comprises a linear and saturated $\text{C}_2\text{-C}_6$ alkylene group.
42. (New) The process of Claim 37, wherein R comprises a linear and saturated $\text{C}_2\text{-C}_6$ alkylene group.
43. (New) The process of Claim 38, wherein R' comprises a linear and saturated $\text{C}_2\text{-C}_6$ alkylene group.
44. (New) The process of Claim 31, wherein said process decreases the hardness of said aqueous system.
45. (New) The process of Claim 31, wherein said process is applied to an industrial or a domestic wash process.

46. (New) The process of Claim 31, wherein the temperature of said aqueous system ranges from about 0 - 200°C.

47. (New) Anti-sealant composition comprising a high molecular weight non-ionic surfactant having anionic groups or salts thereof.

48. (New) Anti-sealant composition of Claim 47, wherein said high molecular weight non-ionic surfactant having anionic groups or salts thereof is represented by formula A or formula B:



wherein:

P is a mono-valent oxygen containing anionic group or a salt thereof selected from the group consisting of oxides of carbon, sulphur and phosphorus;

p is in the range of 1 to 4;

R is a linear or branched, saturated or unsaturated C₂-C₁₂ alkylene group;

A is ethylene oxide;

B is propylene oxide;

n is in the range of 5 to 1000; and

m is in the range of 5 to 1000.